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C O L L O Q U I U M

Implementation of a groundbreaking 12,900 km ultra-secure quantum satellite link between South Africa and China

Dr Yaseera Ismail (Stellenbosch University)

DATE: Monday, 24 March 2025 | 16h00–17h00 SAST

VENUES:
- Neelsie Cinema, Stellenbosch University
- Online

--- A recording of the talk will be published on the NITheCS YouTube channel afterwards ---

ABSTRACT

Quantum Key Distribution (QKD) has emerged as a revolutionary technology for secure communication, leveraging the principles of quantum mechanics to ensure unbreakable encryption. Recent advancements in space-based QKD have enabled global-scale secure communication by utilizing microsatellites as cost-effective and efficient platforms for key distribution.

Here, we will be presenting our recent groundbreaking result on the first quantum satellite link implemented in the Southern Hemisphere and the longest inter-continental ultra-secure quantum satellite link of 12,900 km between South Africa and China.

This work was recently published in Nature:
Nature (2025). https://doi.org/10.1038/s41586-025-08739-z

BIOGRAPHY

Dr Yaseera Ismail is a Senior Lecturer in the Department of Physics at Stellenbosch University, and heads the QuPhotonics Lab. She is an experimentalist, that specialises in developing quantum optical tools to advance free-space, long-range secure quantum communication. In 2016, she received the TechWomen Emerging Leader Award. In 2018, she was recognised as an Optica Ambassador and is an Optica-appointed Vice President on the International Commission for Optics. She is a fellow of the DHET Future Professor Program and in 2024 she was inaugurated into the South African Young Academy of Sciences.

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